

**Prior Art**

100

**Figure 1**



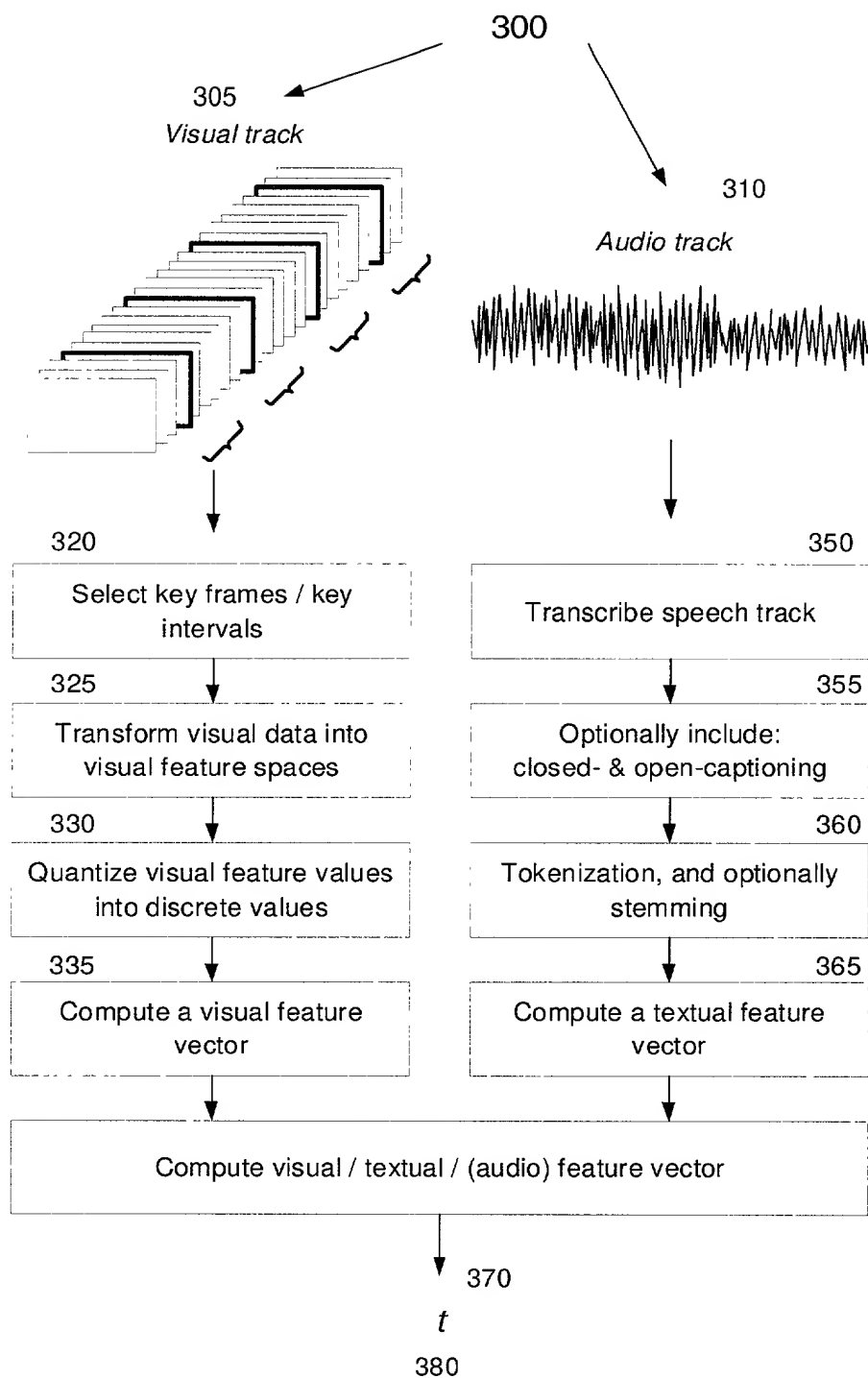
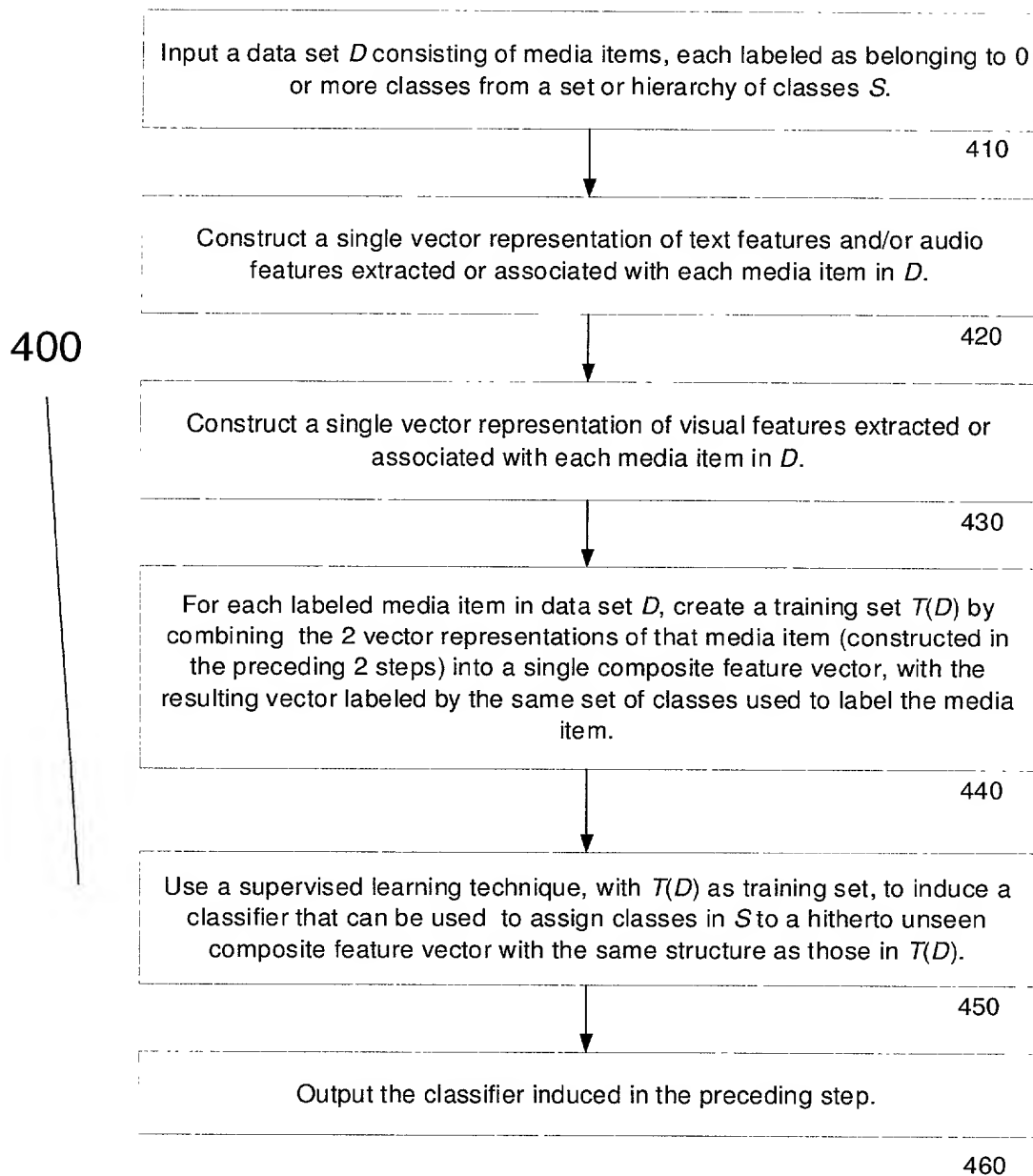


Figure 3



**Figure 4**

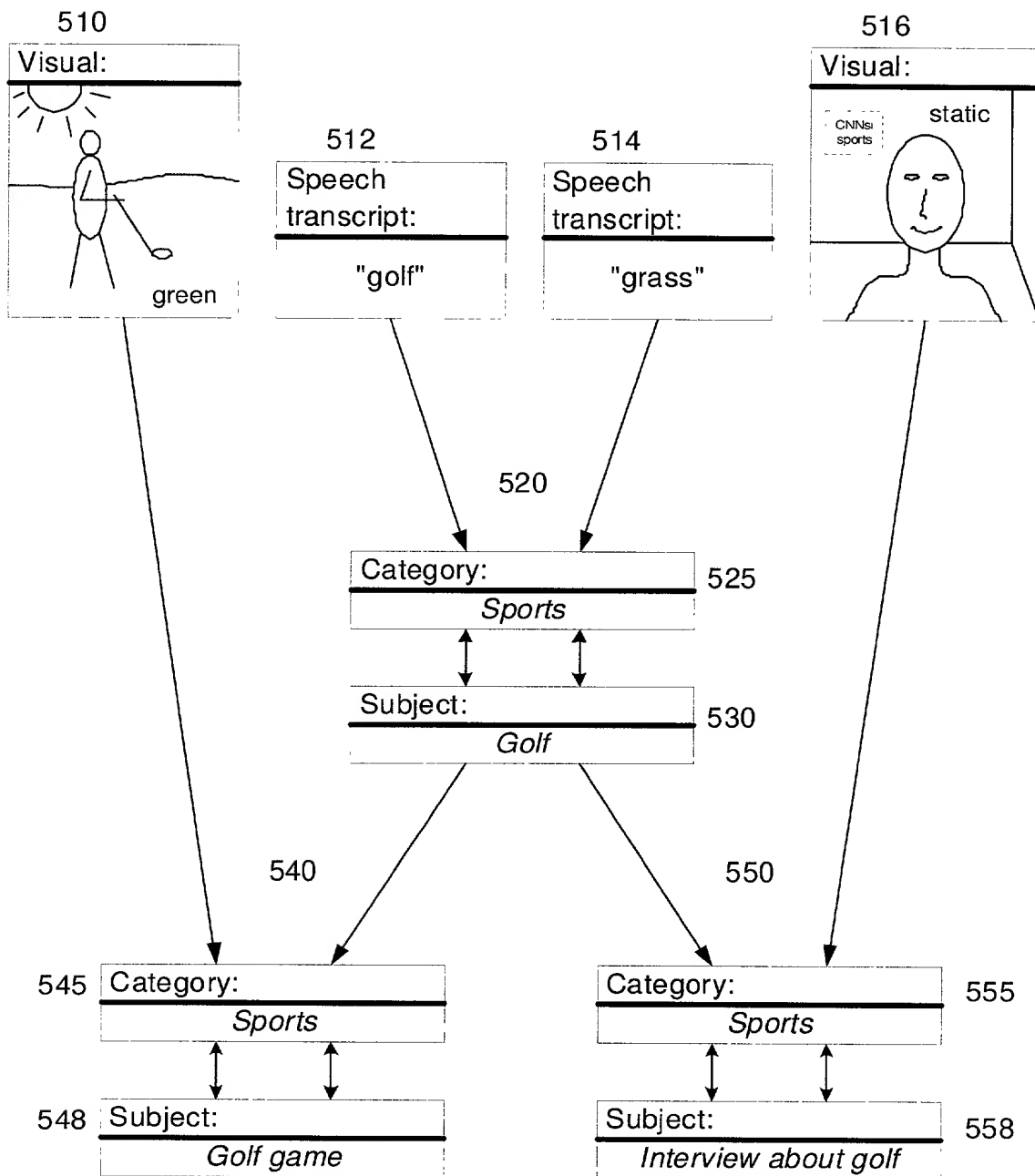
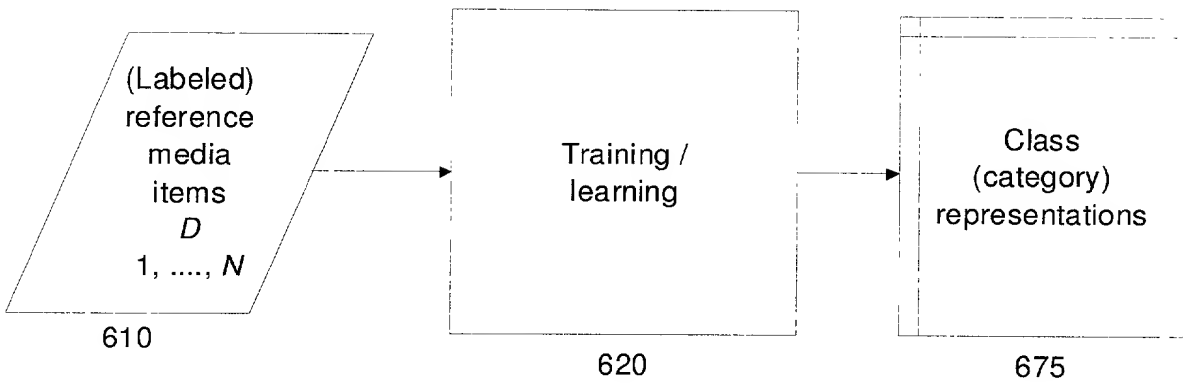
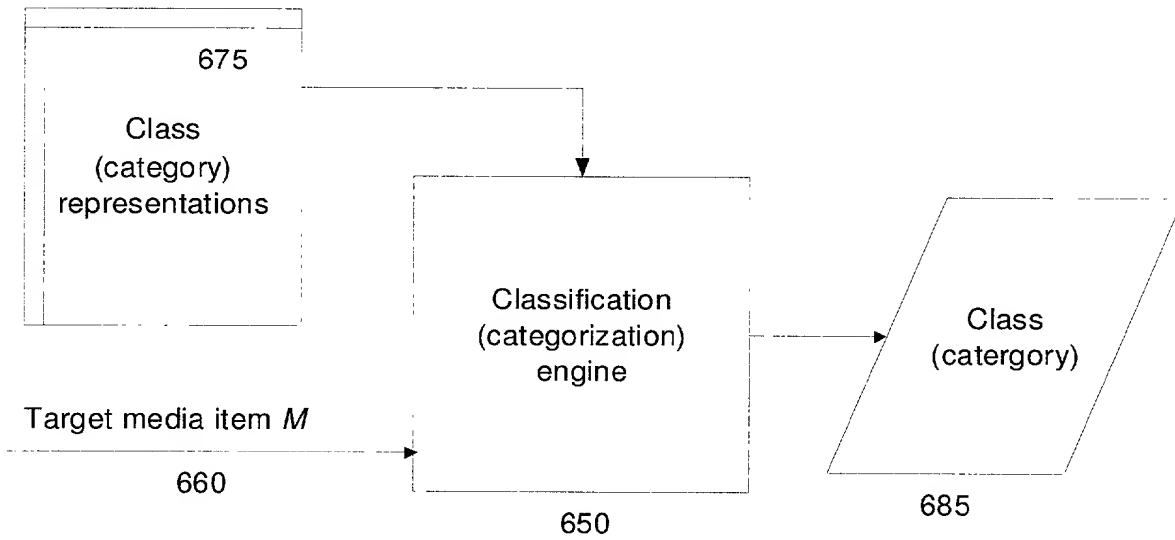


Figure 5



Training / learning phase **610**

**A**



Classification phase **615**

**B**

**Figure 6**

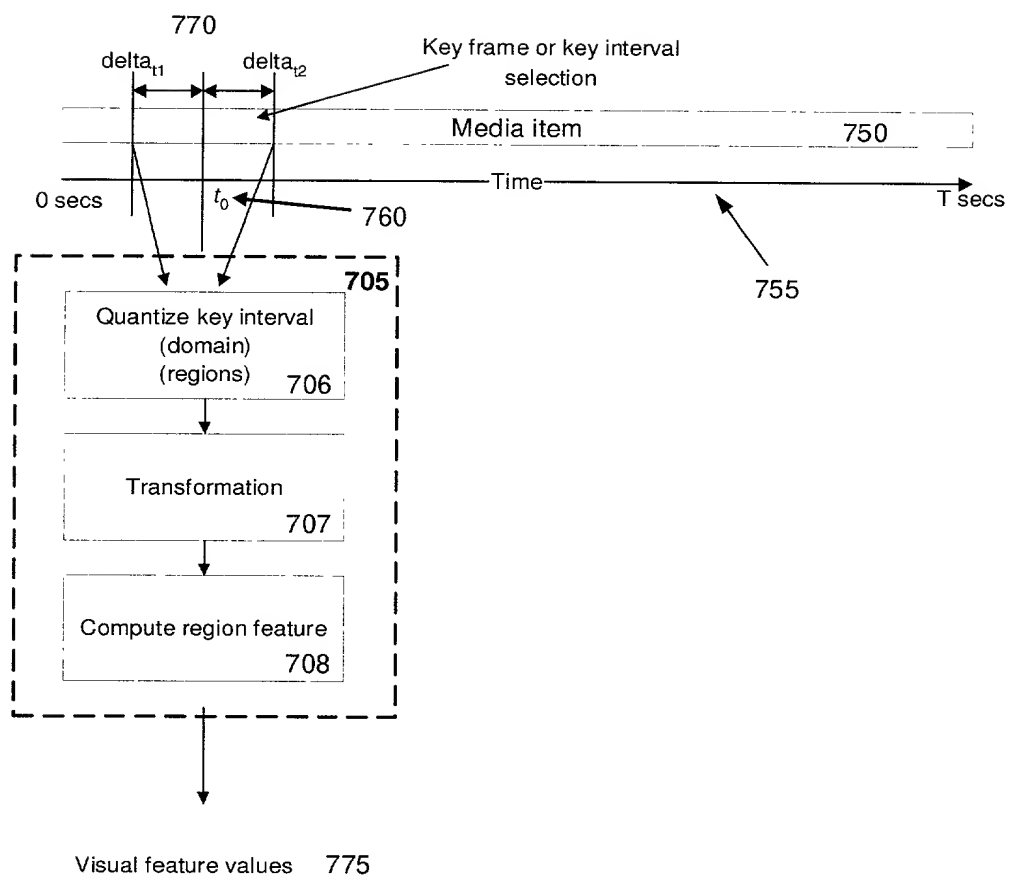


Figure 7A

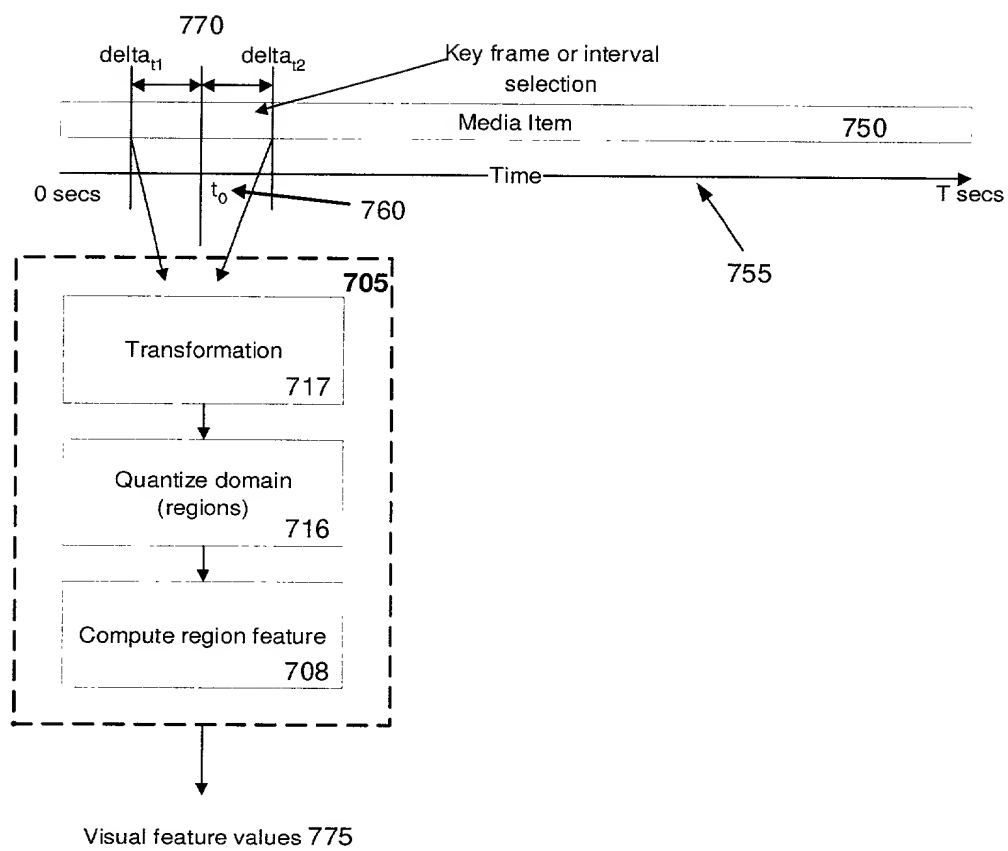
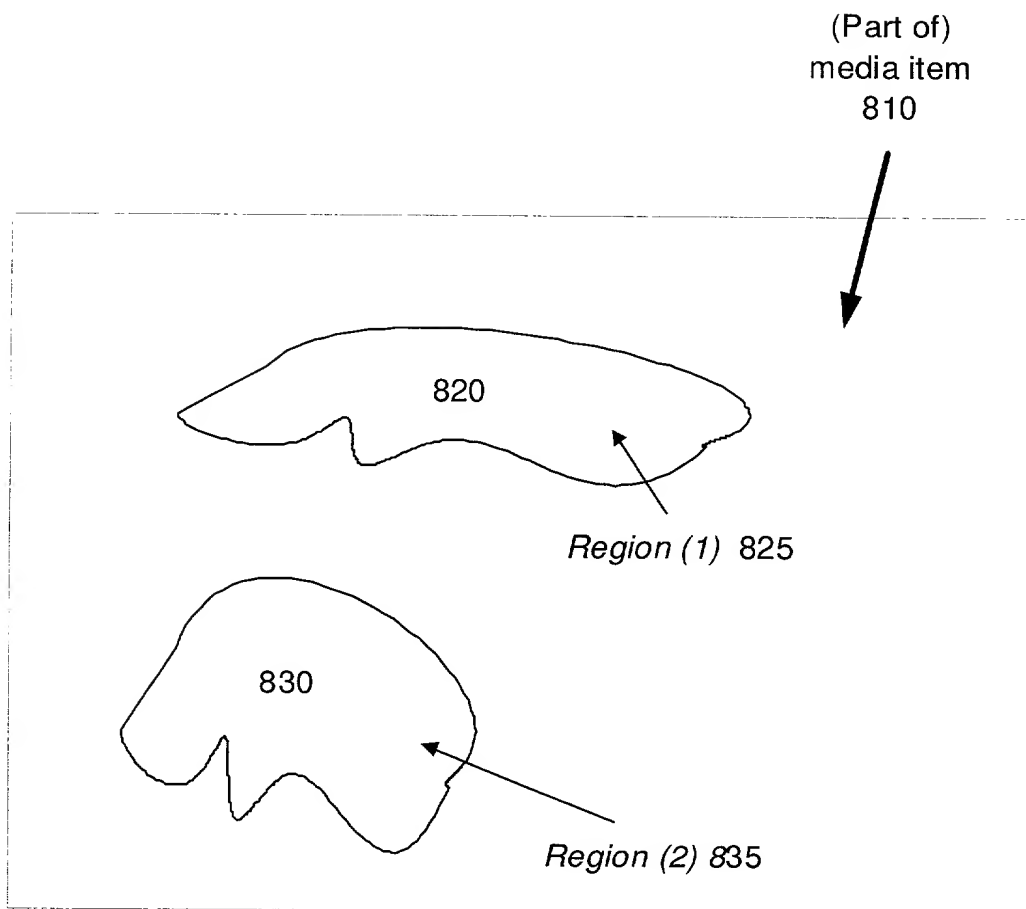


Figure 7B





**Figure 8**

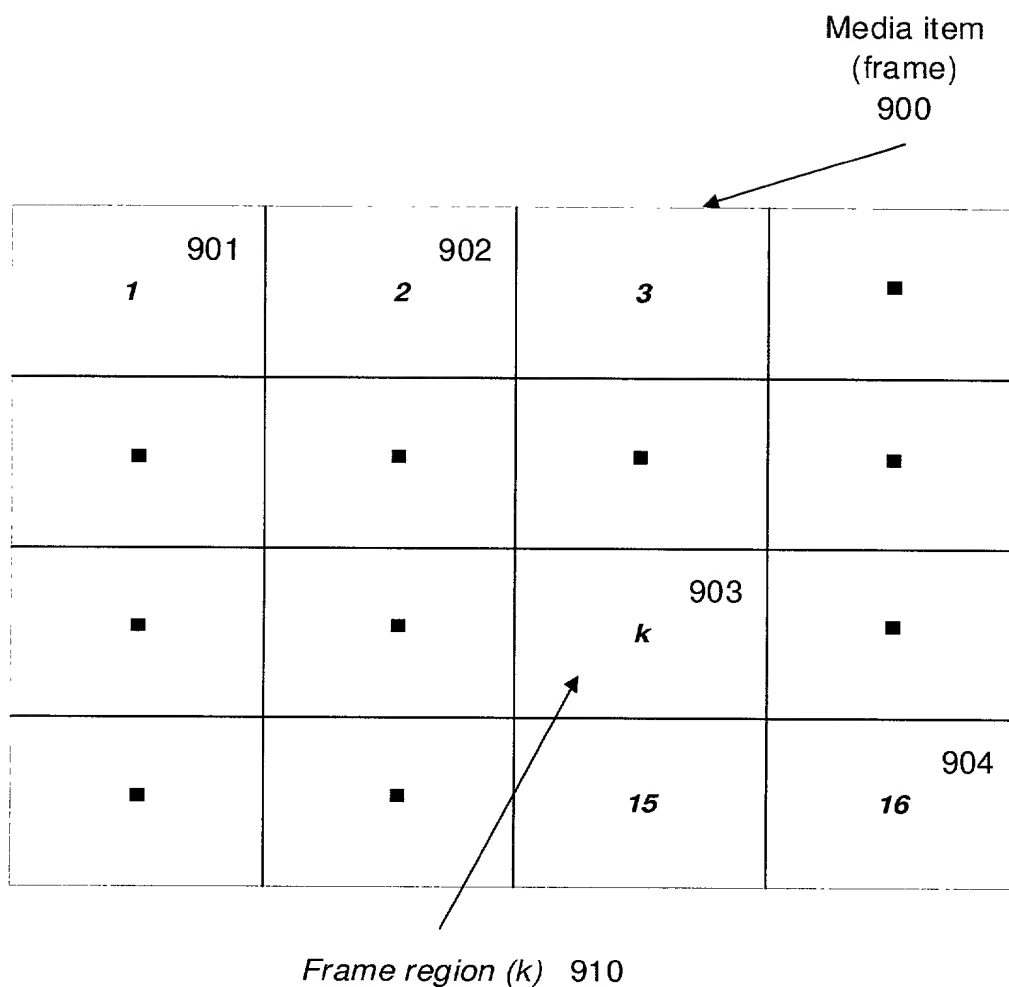


Figure 9

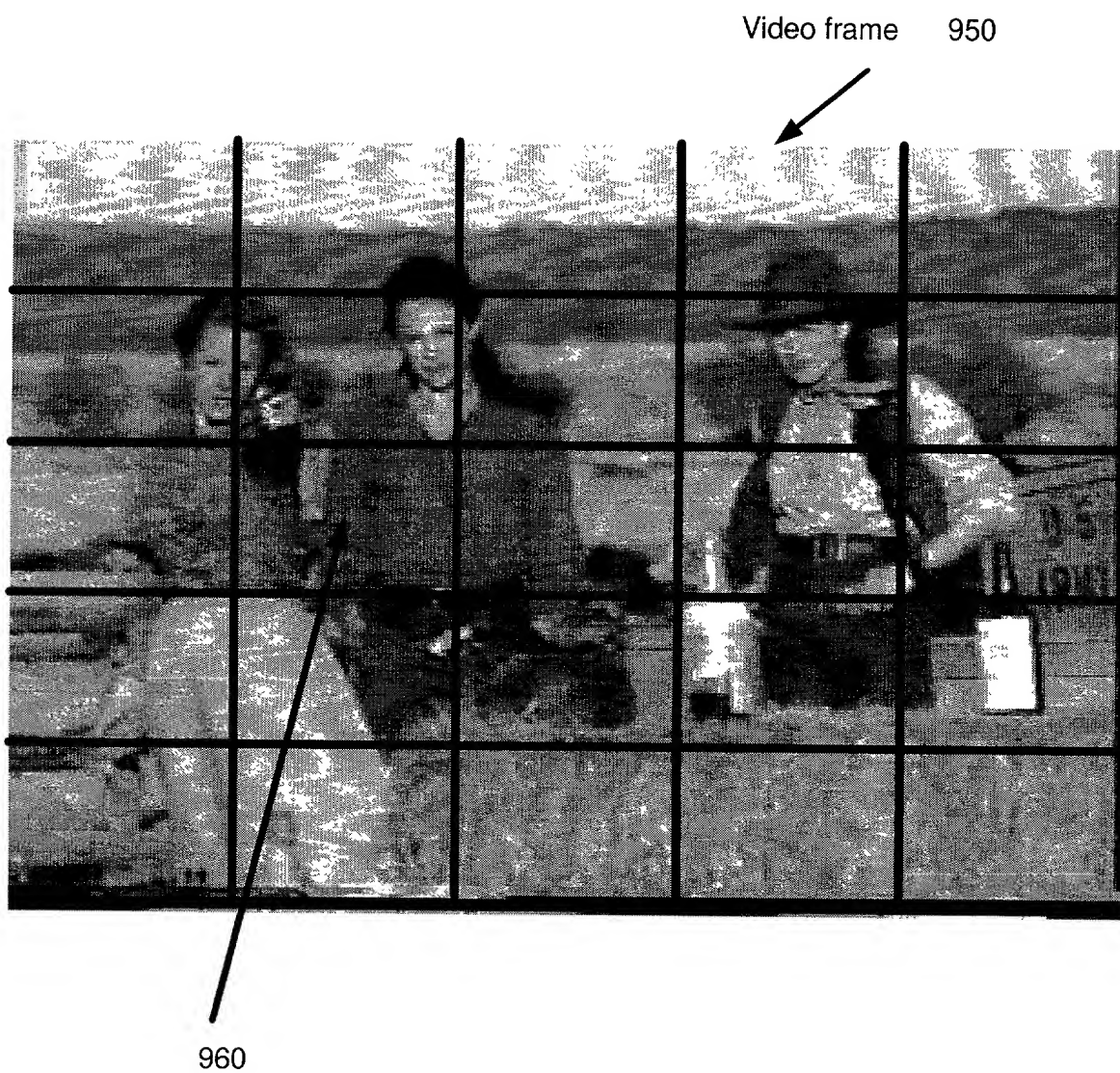
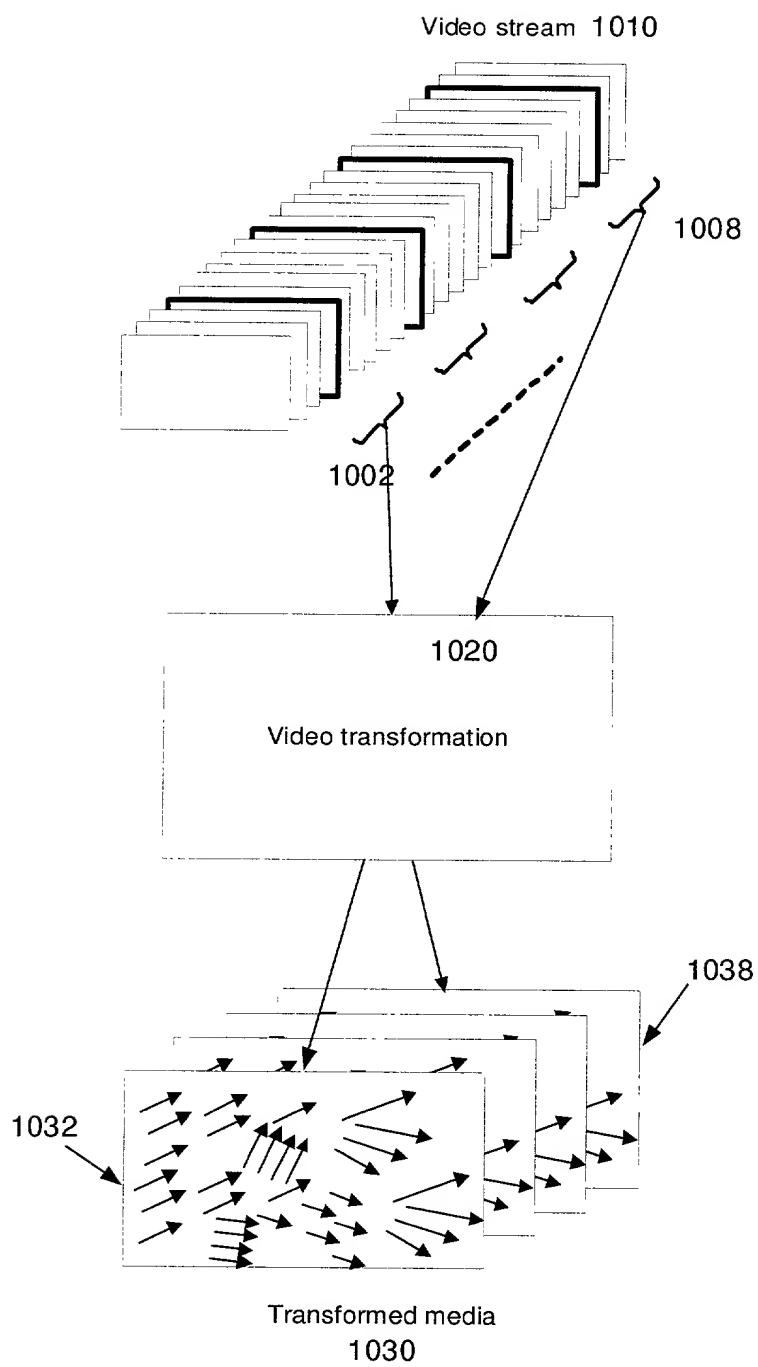


Figure 9A



**Figure 10**

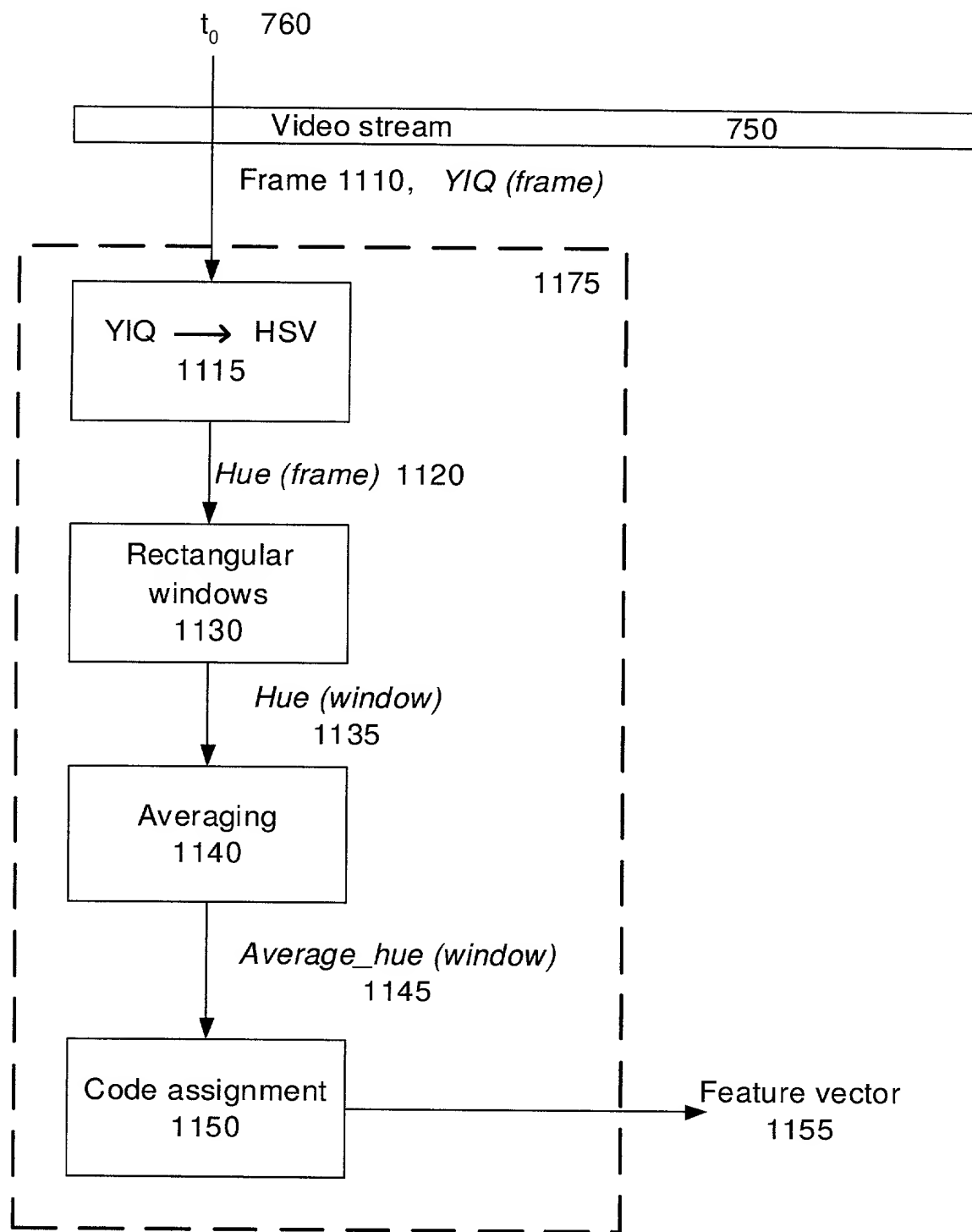
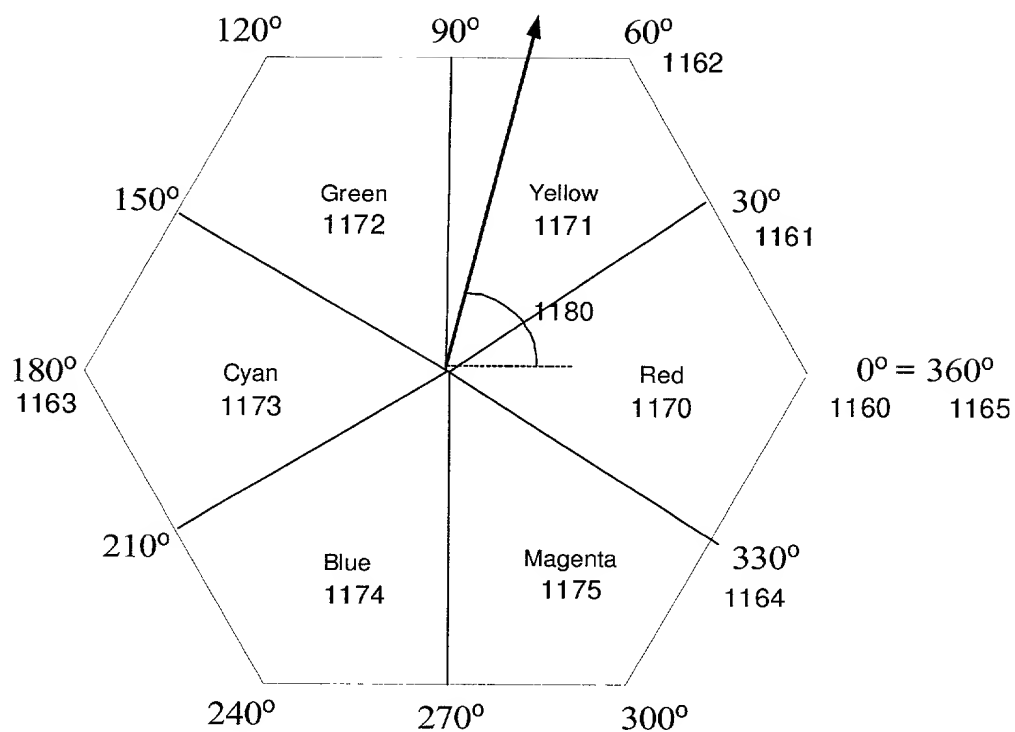


Figure 11A



Hue quantization (1180)

<i>Color range</i>	<i>Code</i>	<i>Color</i>	
330 - 30 degrees	0	Red	(1170)
30 - 90 degrees	1	Yellow	(1171)
90 - 150 degrees	2	Green	(1172)
150 - 210 degrees	3	Cyan	(1173)
210 - 270 degrees	4	Blue	(1174)
270 - 330 degrees	5	Magenta	(1175)

Figure 11B

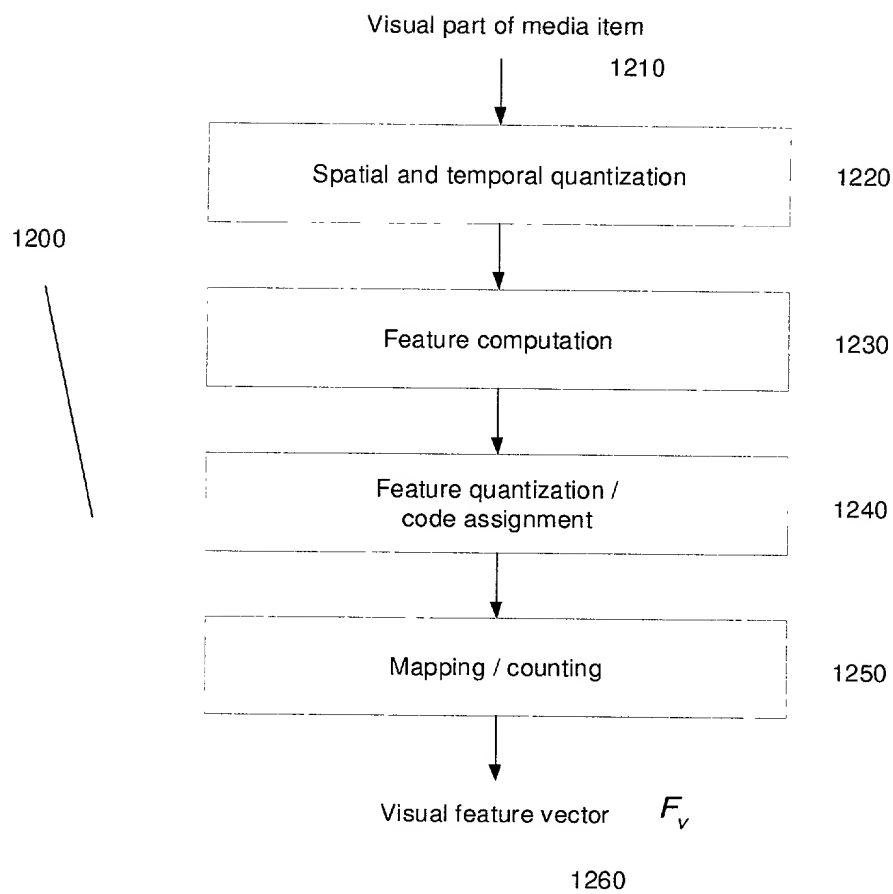


Figure 12

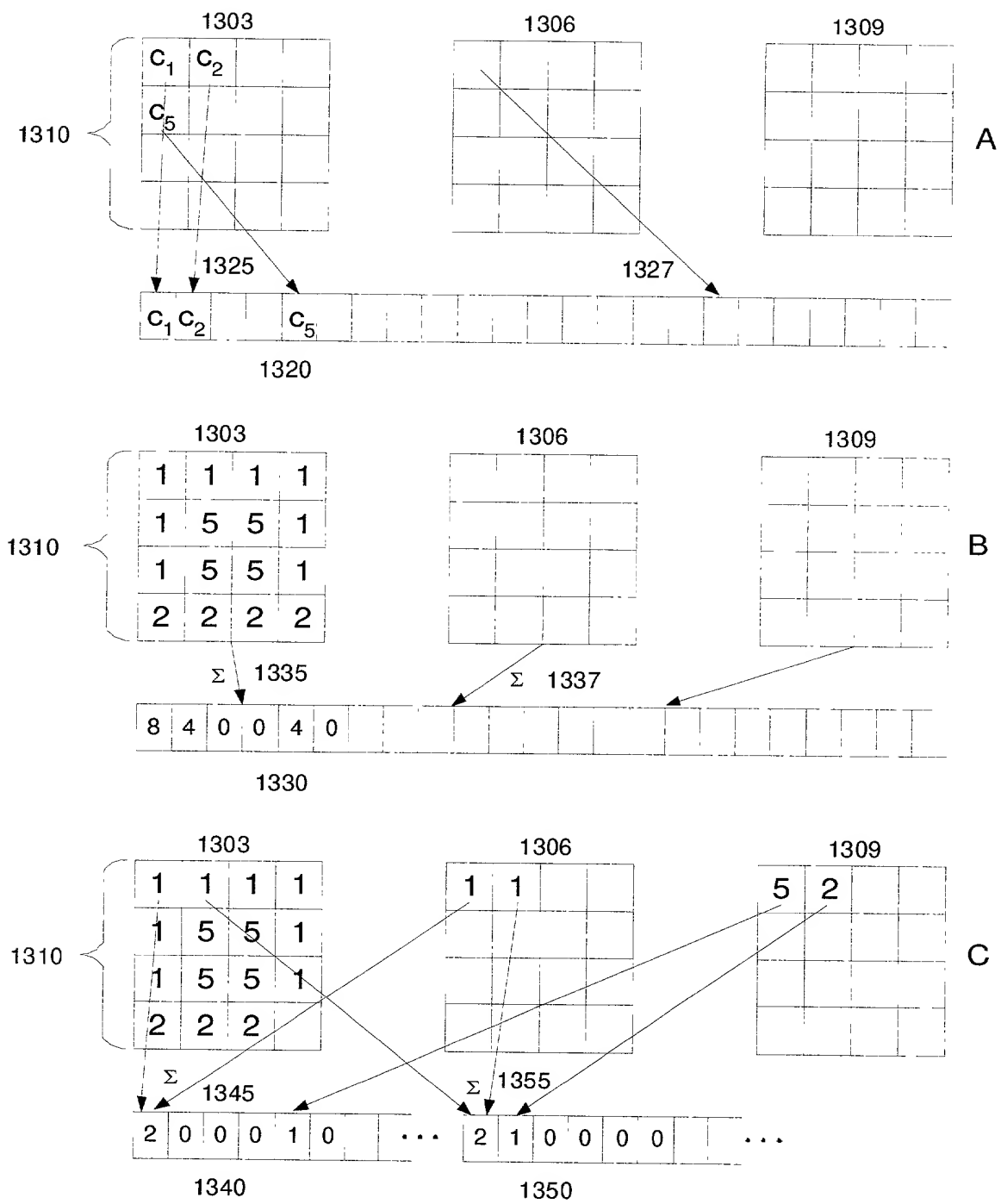
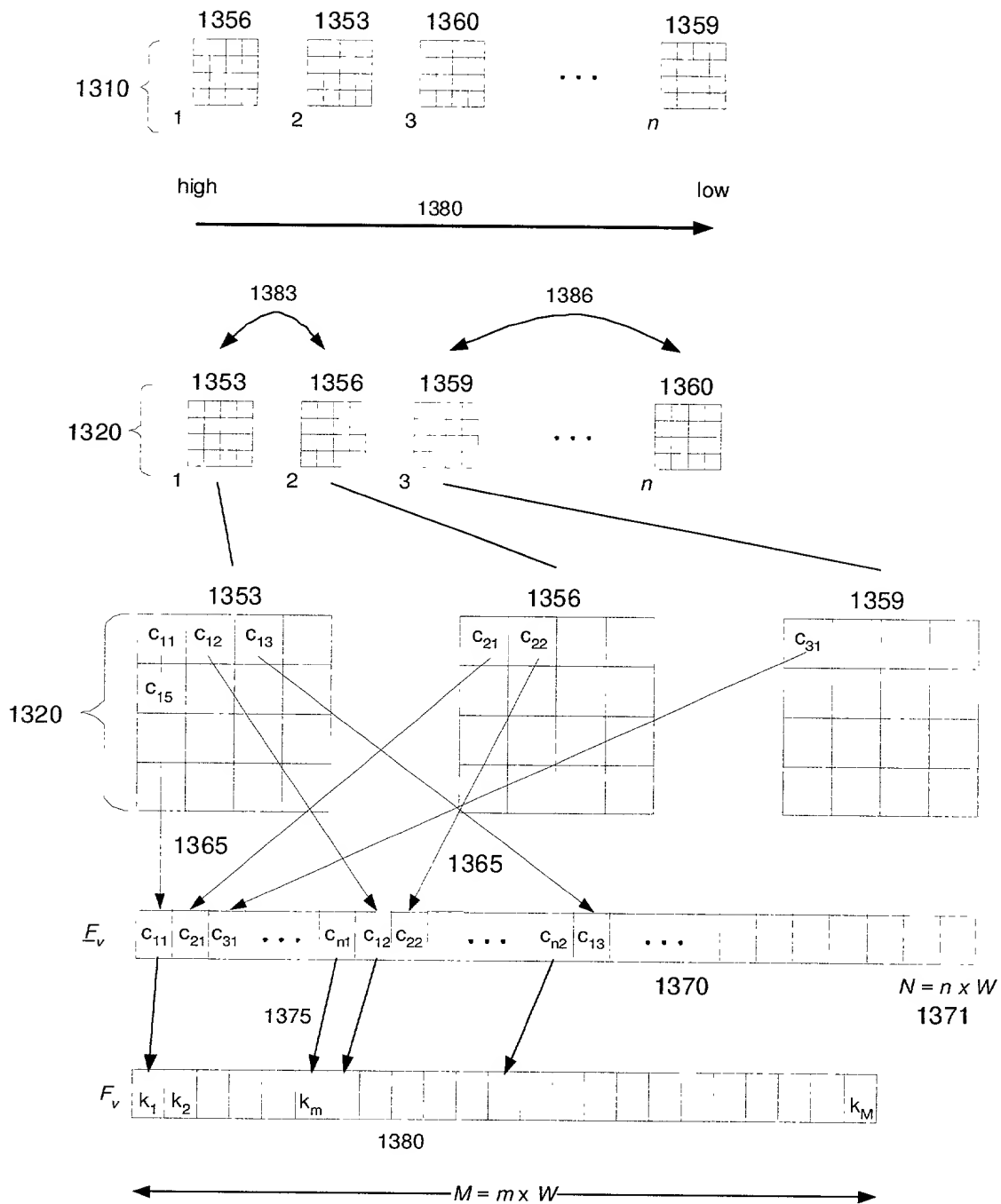


Figure 13





**Figure 13D**

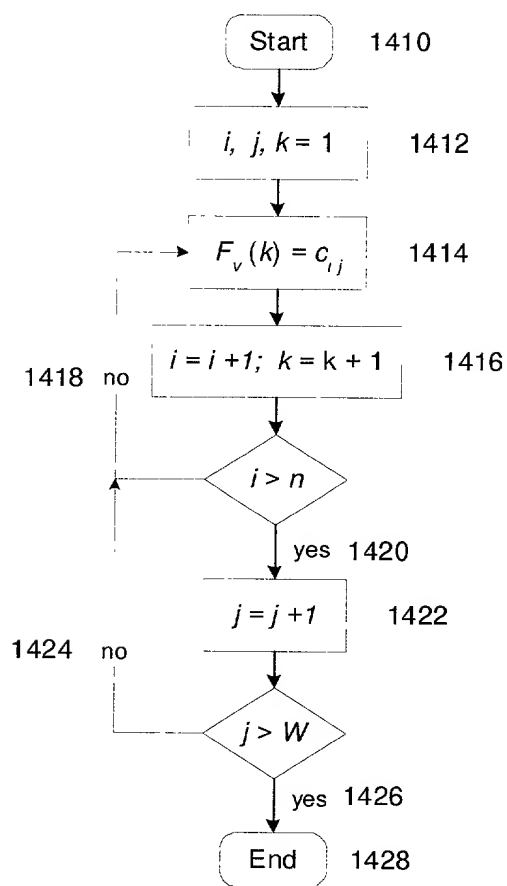
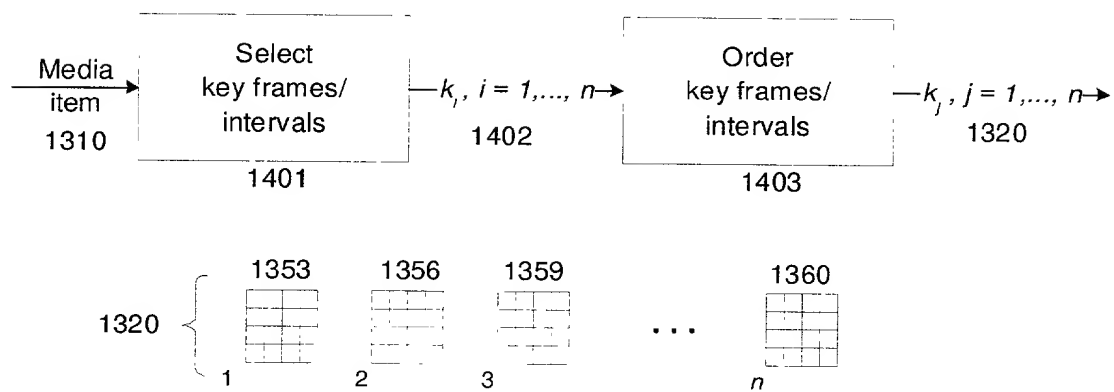


Figure 14A

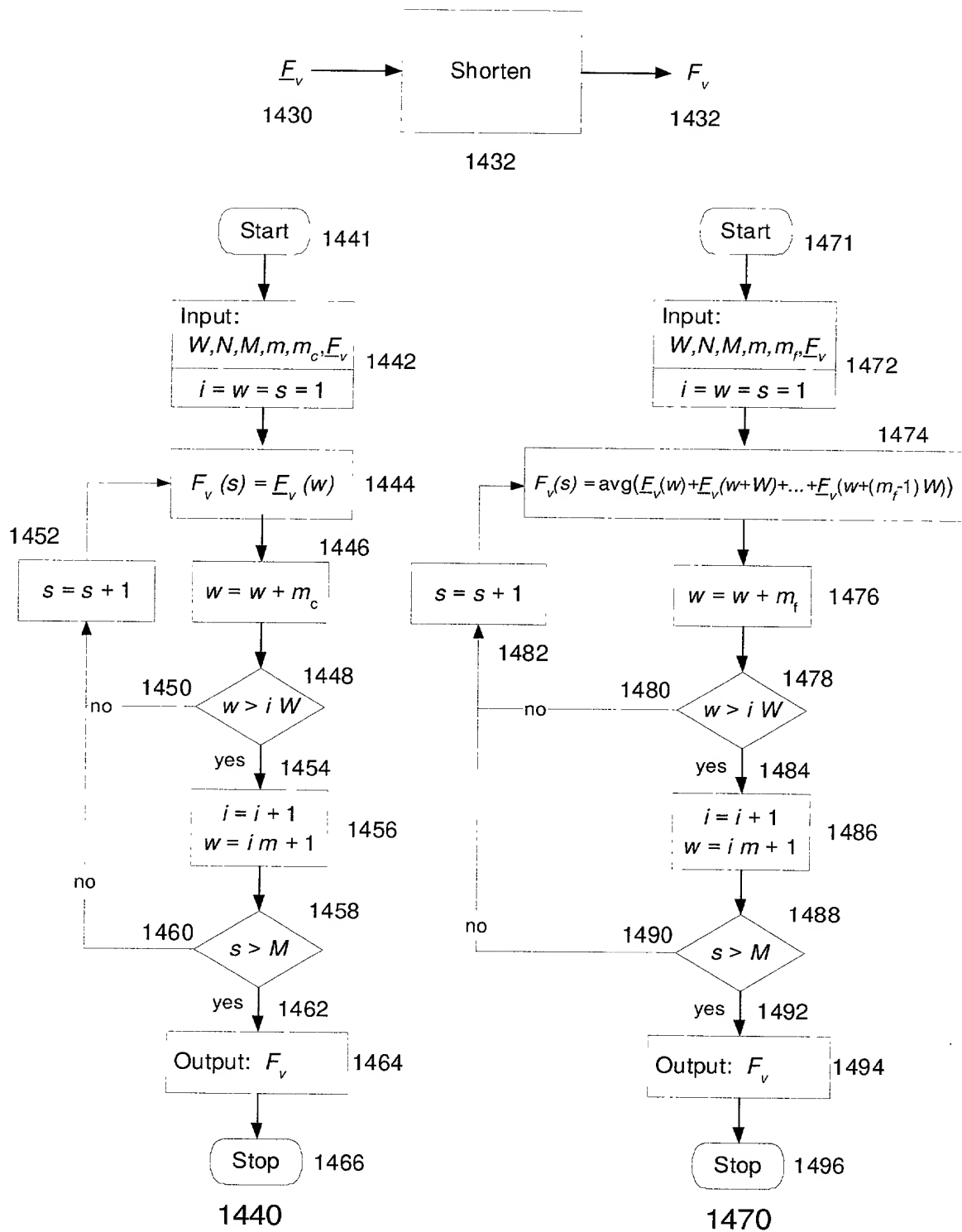


Figure 14B

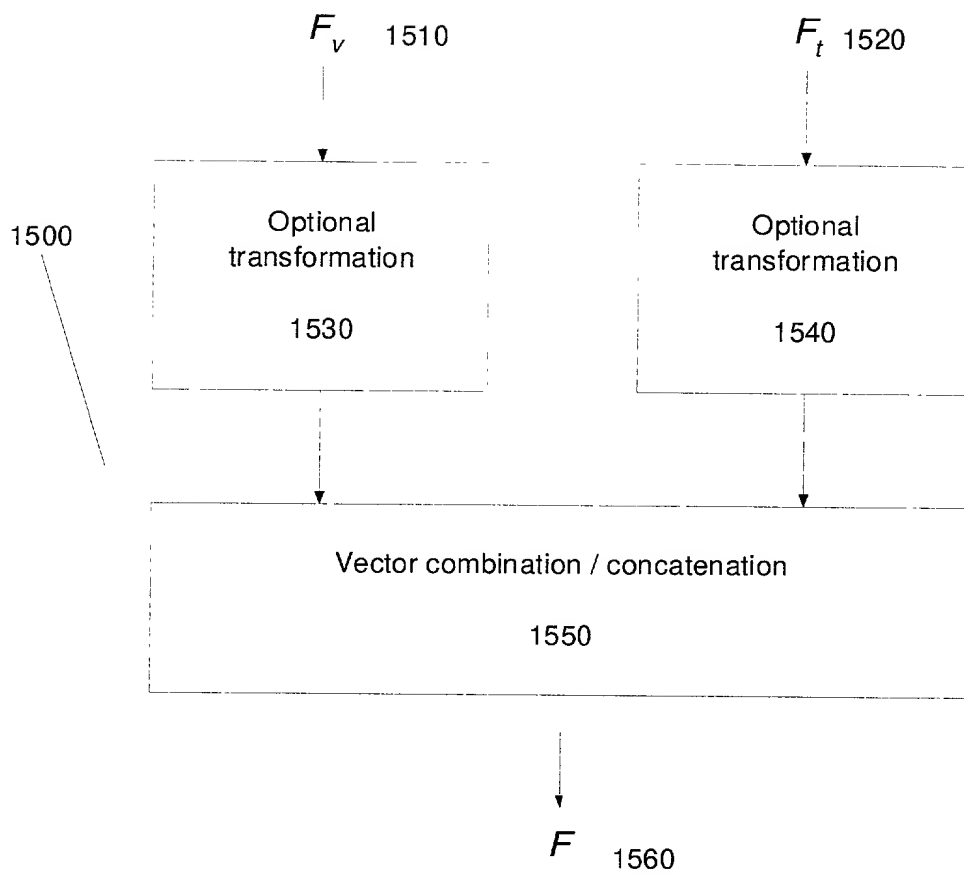


Figure 15

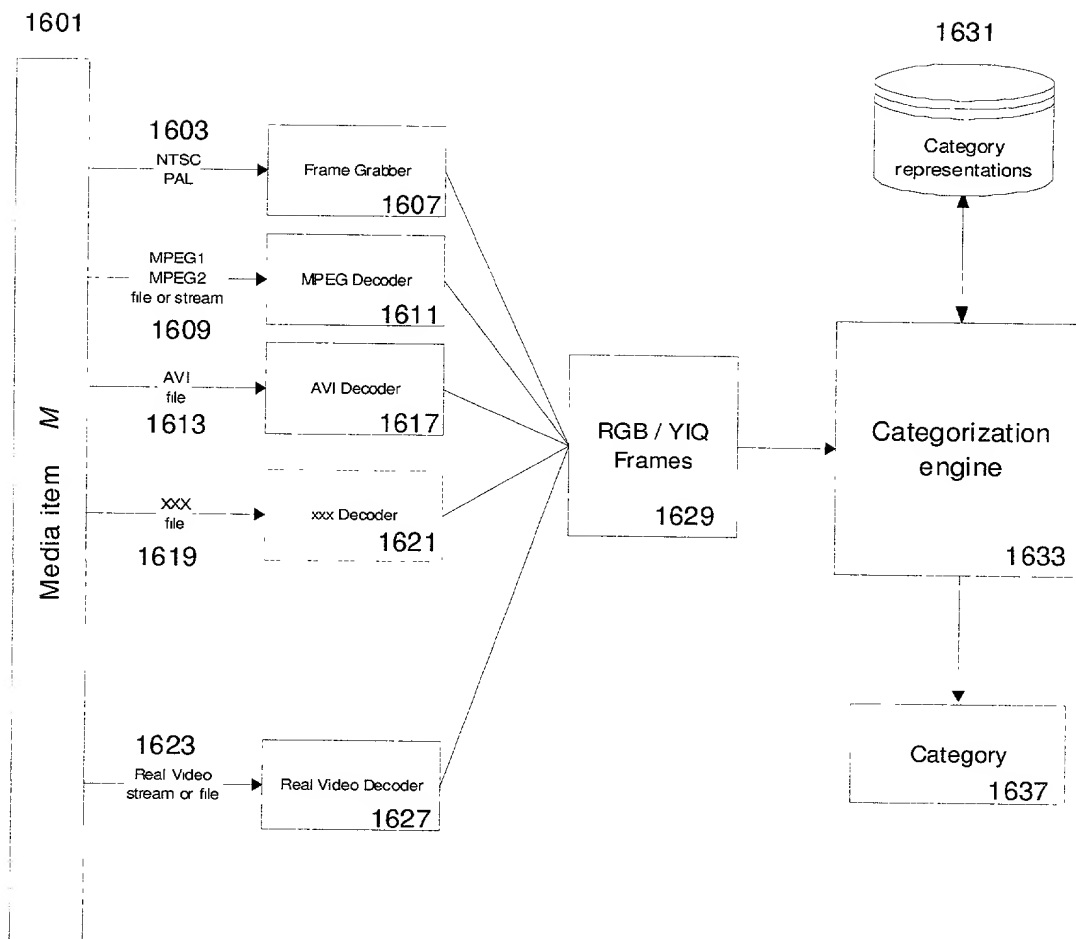


Figure 16

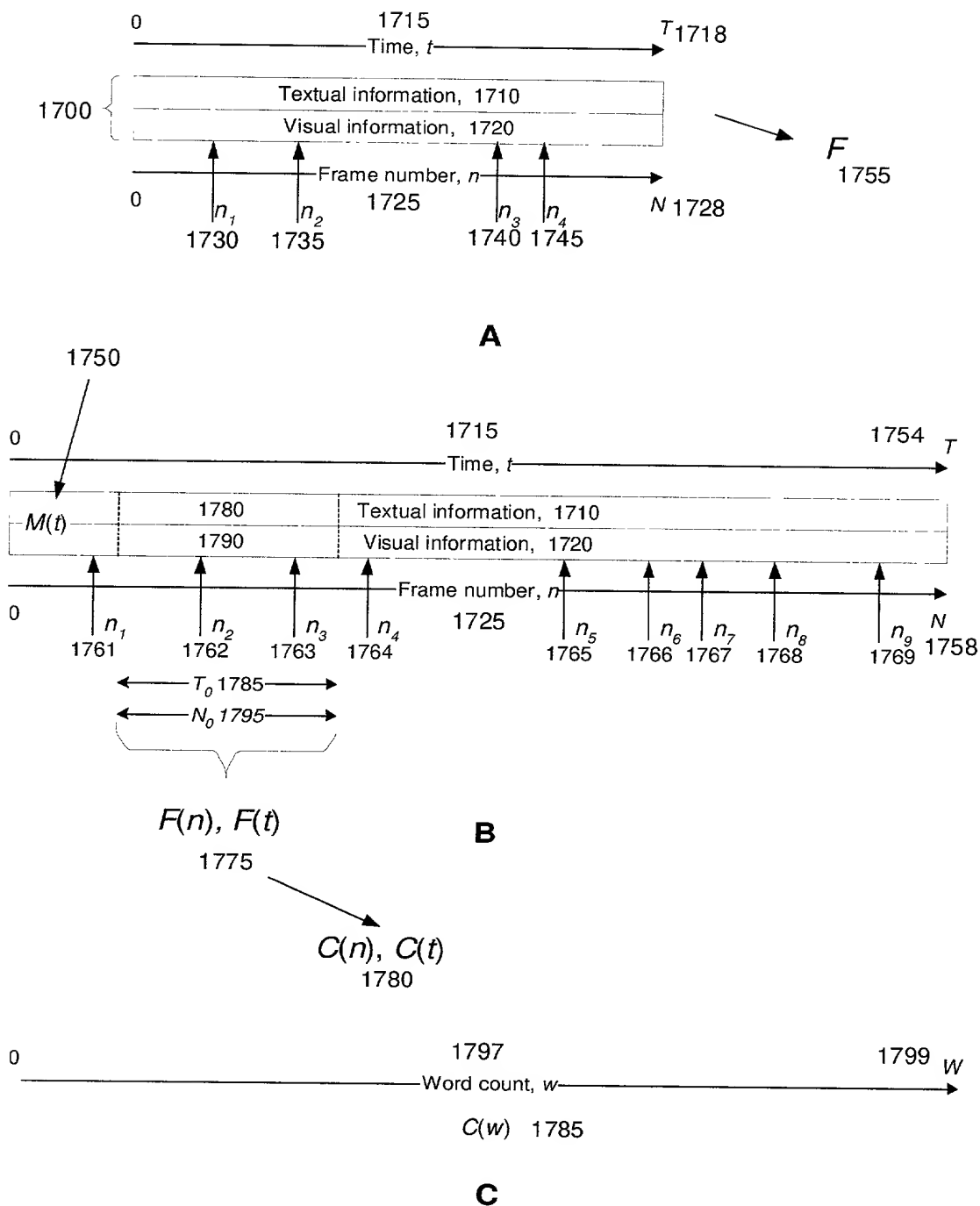


Figure 17

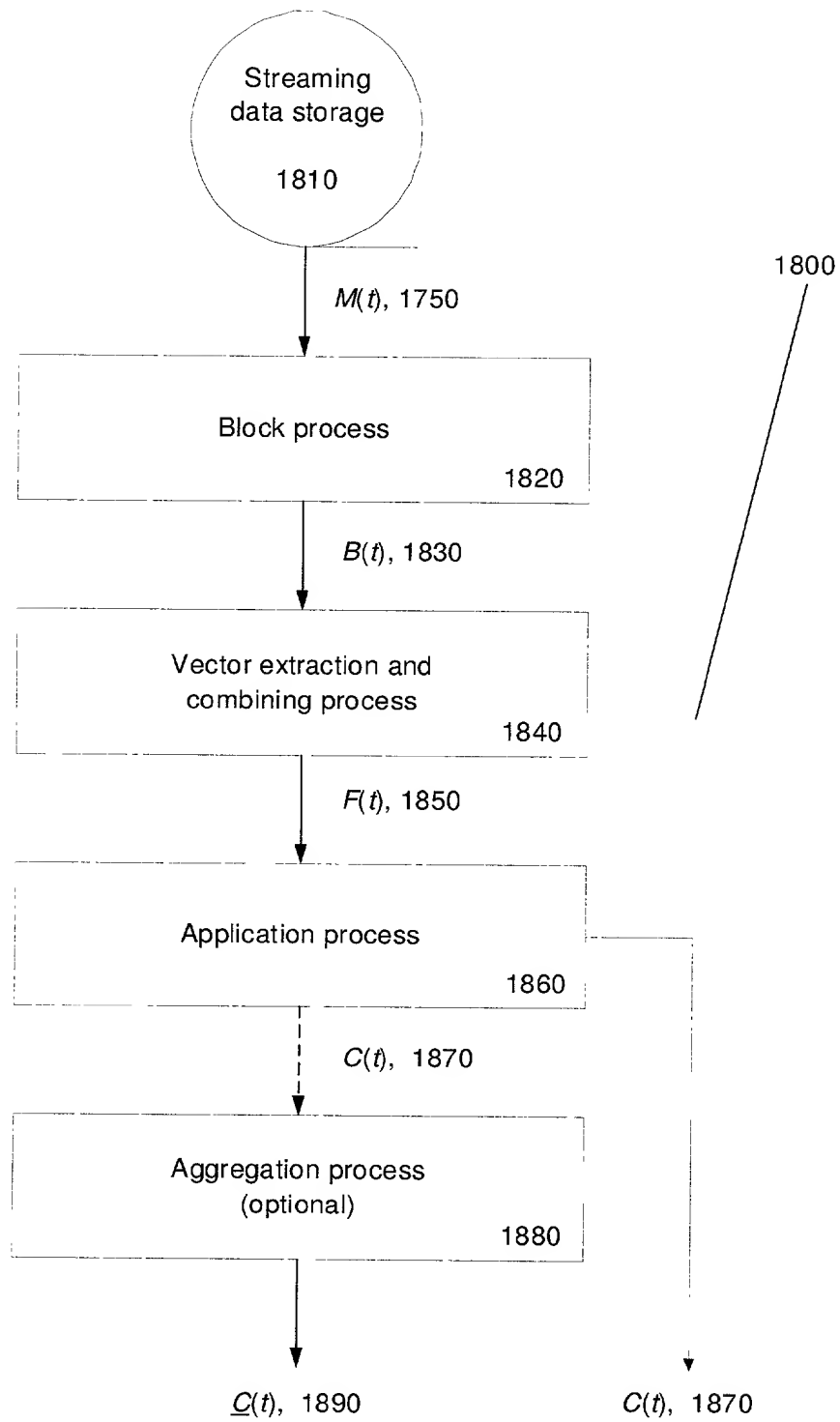


Figure 18

Category  $C_i$

1900

1910 US President  $c_1$

1915 European Union  $c_2$

1920 weath - er  $c_3$

1925 Free trade  $c_4$

1930 Crime in the cities  $c_5$

1935 weath - er  $c_3$

1940 Baseball league  $c_6$

1905

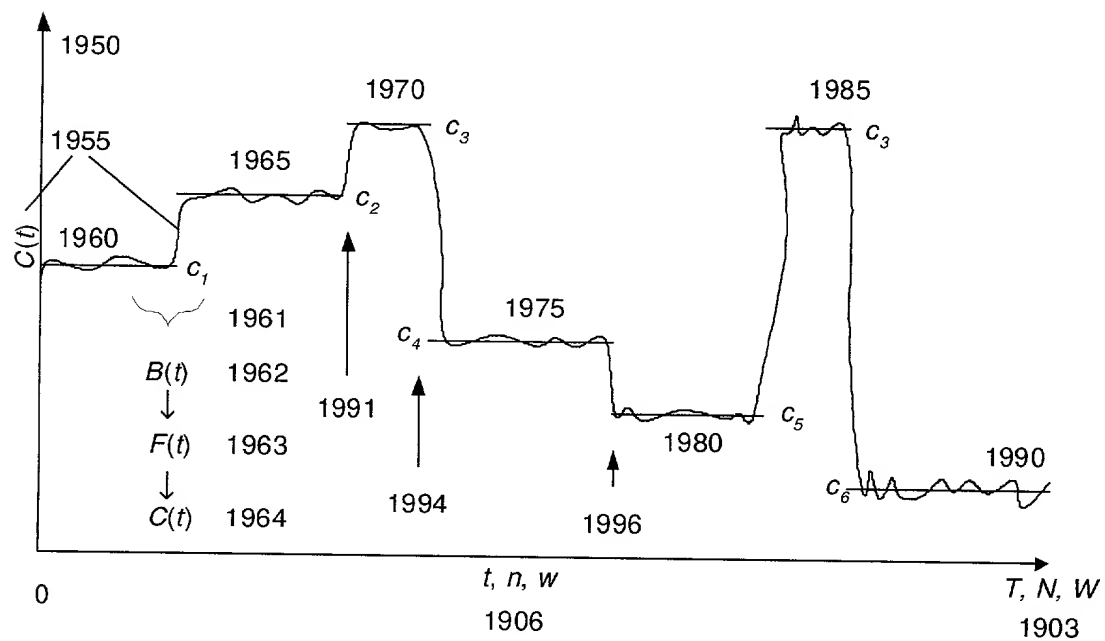
0

$t, n, w$

1906

1903

**A**

**B**

**Figure 19**



1905  $C_t(t)$  US President European Union weather

1915

1920

1905  $C(t)$   $c_1 c_3 c_1 c_1 c_2 c_1 c_1 c_7 c_1 c_1 c_2 c_2 c_4 c_2 c_2 c_1 c_2 c_1 c_2 c_4 c_2 c_2 c_3 c_2 c_4 c_2 c_3 c_1 c_3 c_3 c_3 c_1 c_4 c_3 c_3 c_3 c_1$

2000

audio -- silence 2005

audio -- speaker change 2010

speech transcript -- end-of-sentence 2015

visual information -- shot break 2020

closed-captioning -- ">>" 2025

$t, n, w$

1906

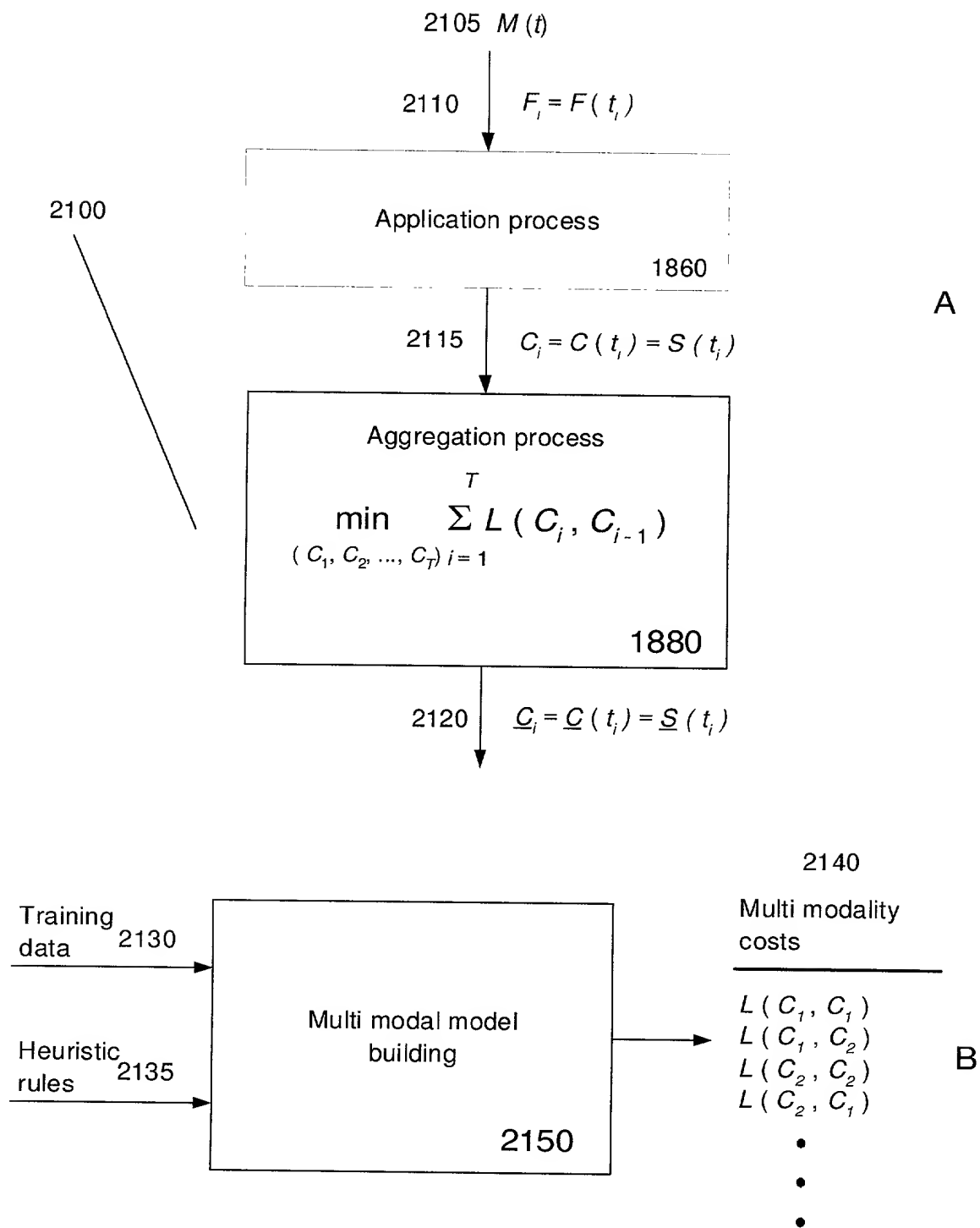
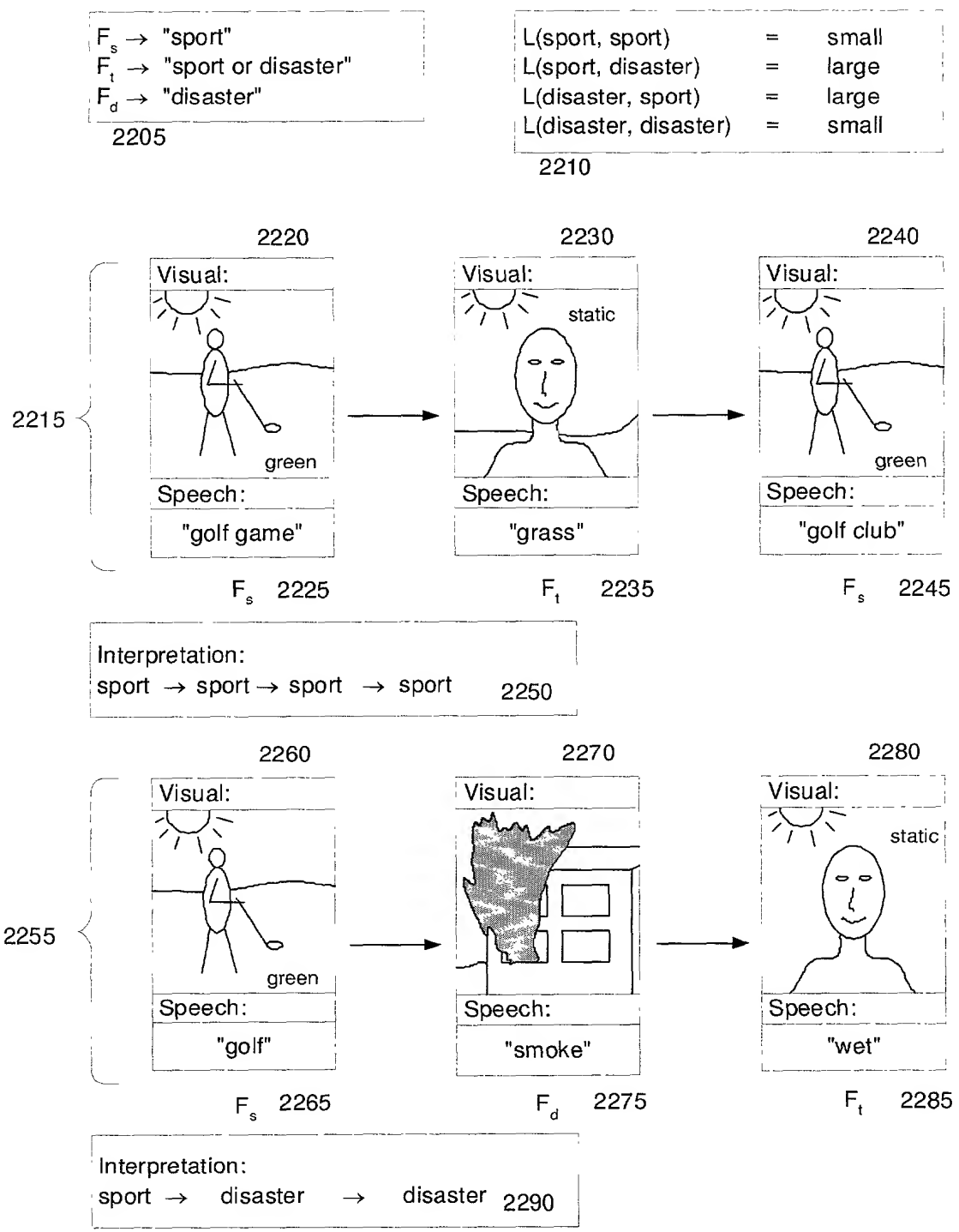


Figure 21



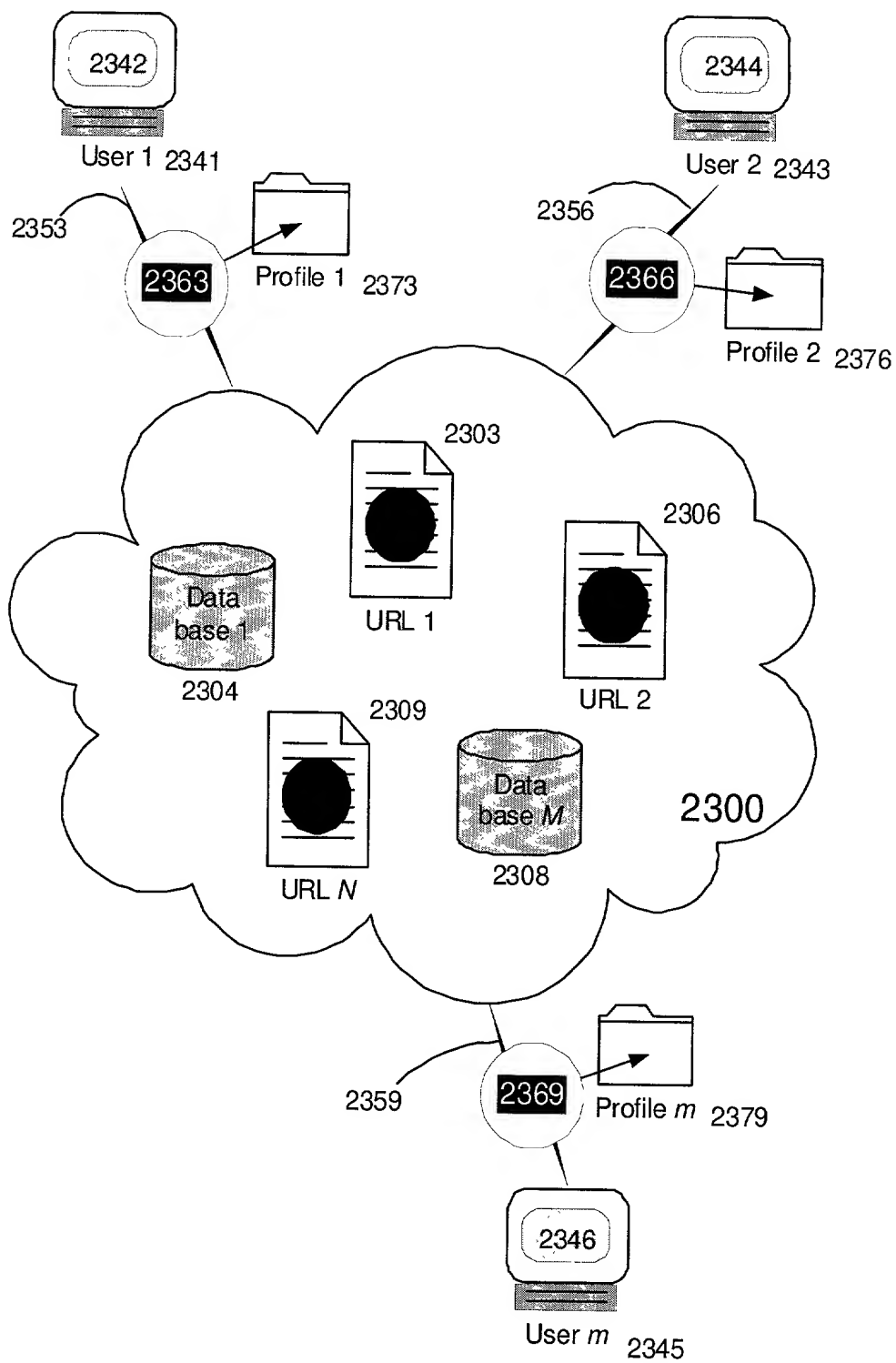


Figure 23

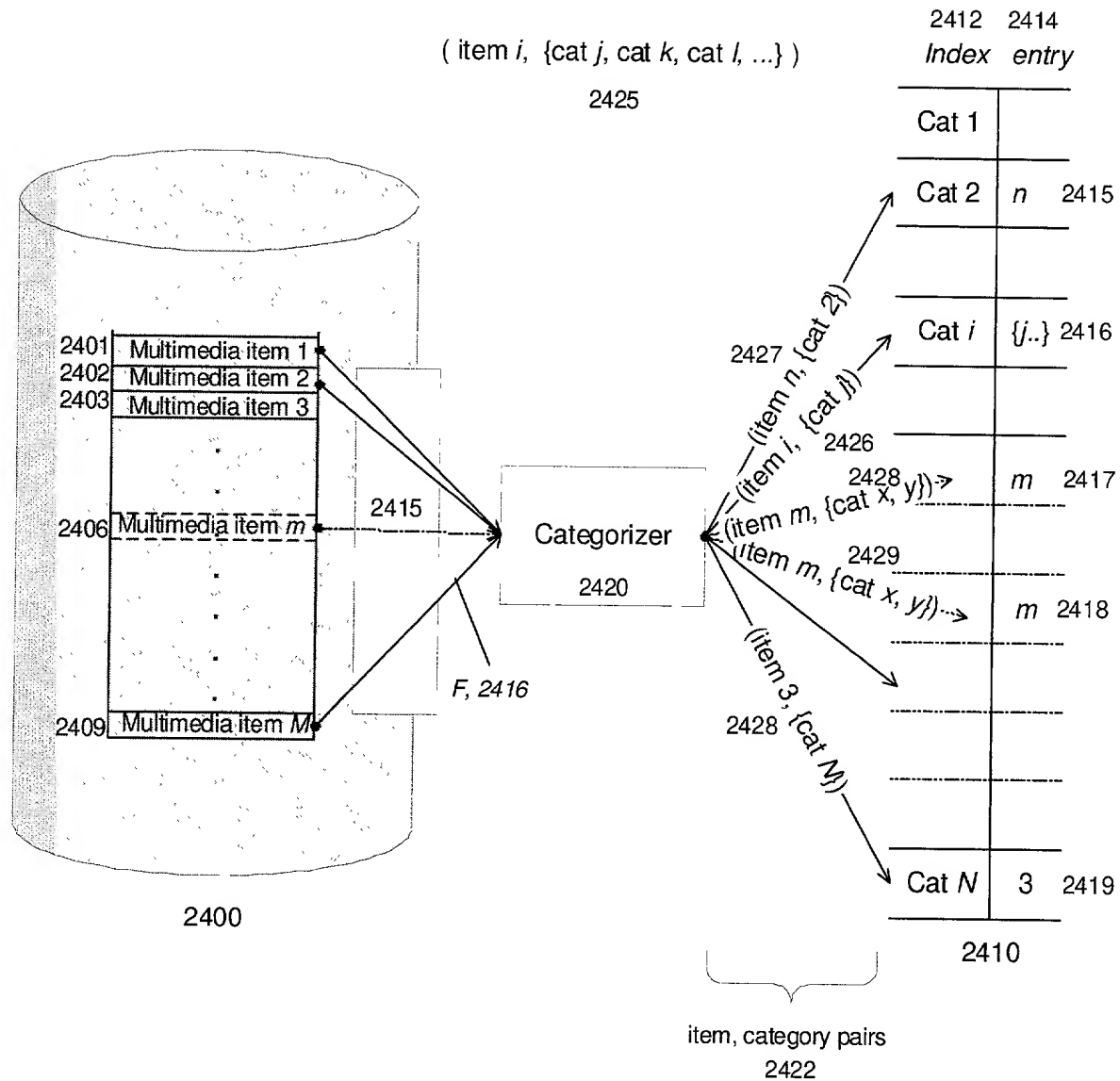


Figure 24A

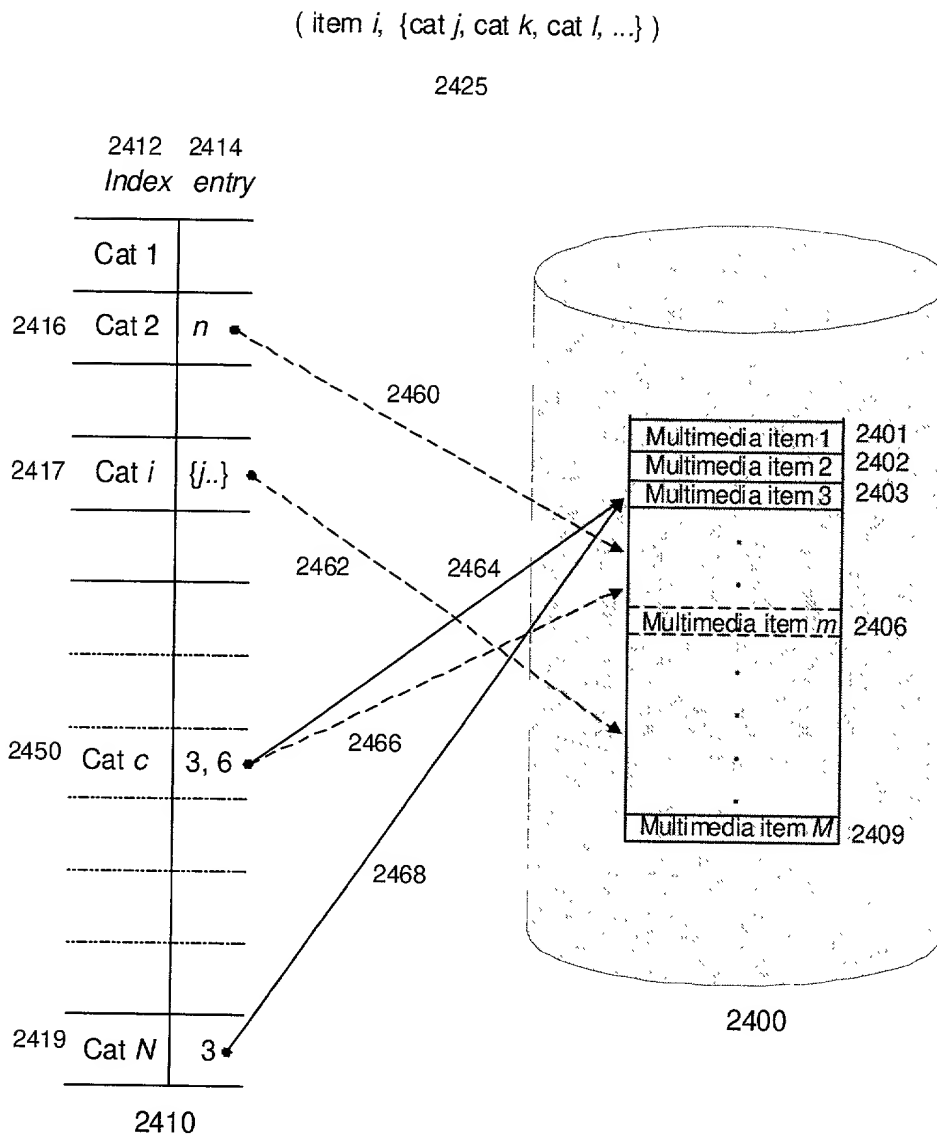


Figure 24B

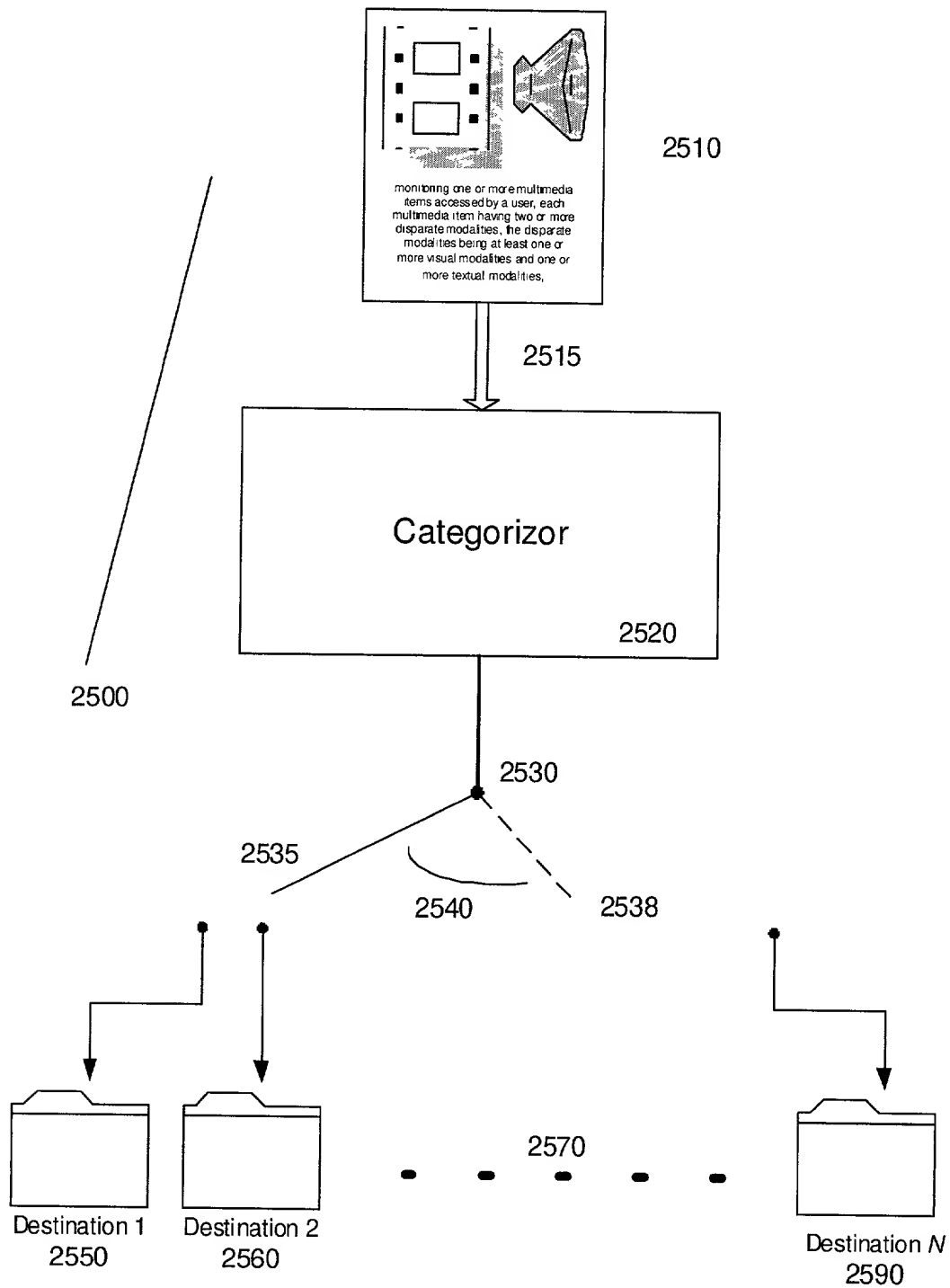


Figure 25

2600

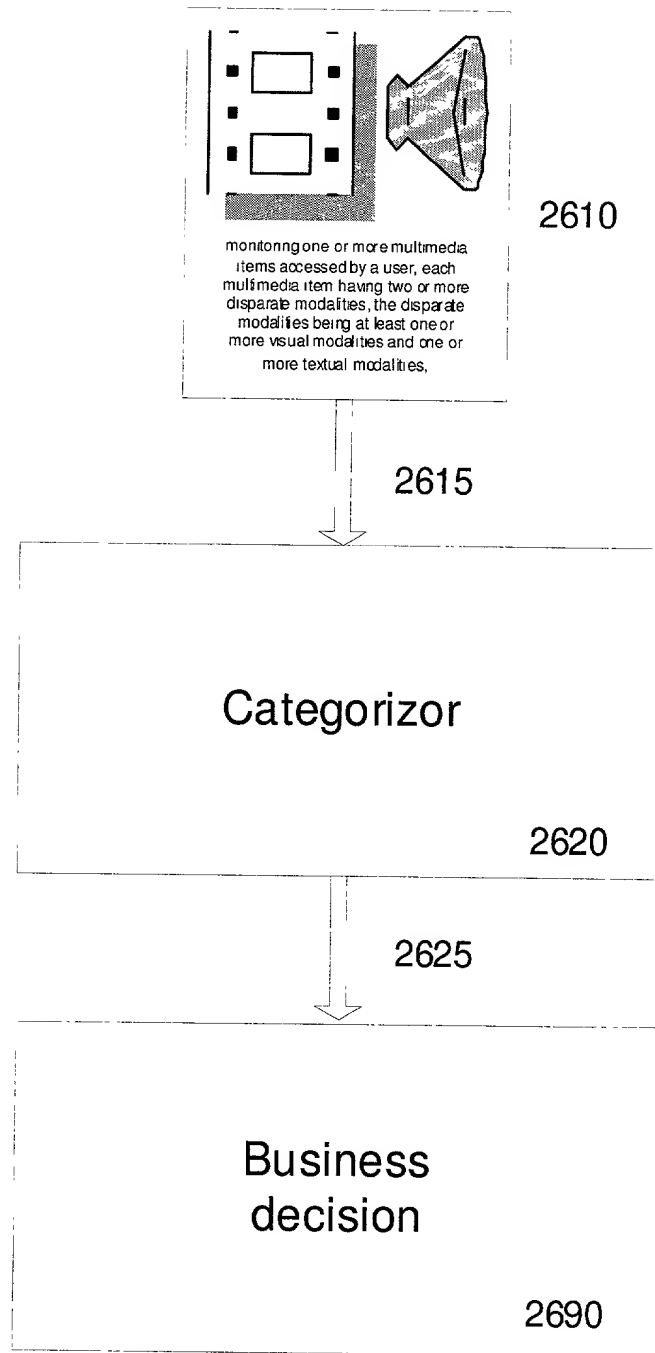


Figure 26



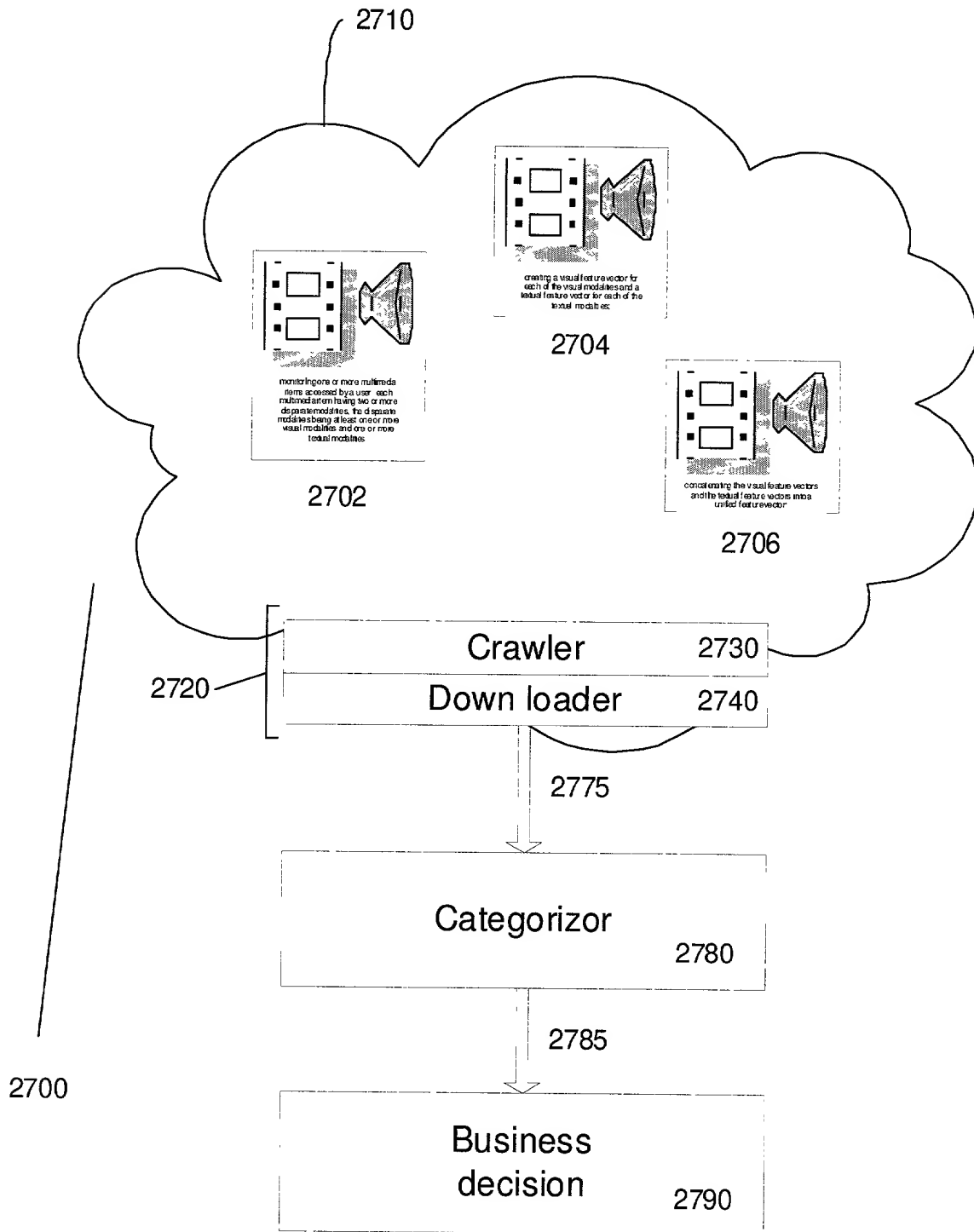


Figure 27